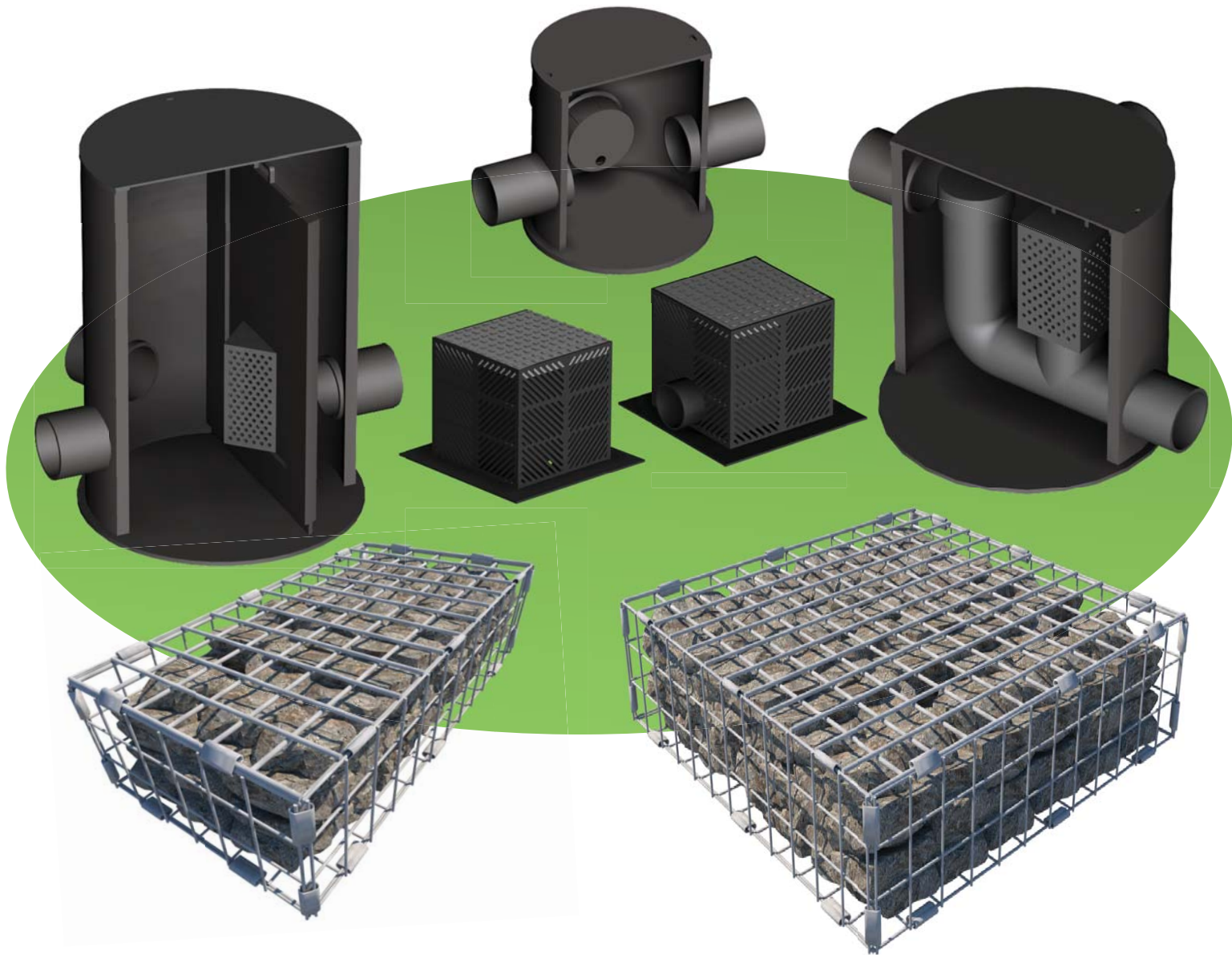


Controlflow

flow controls dedicated to SuDS



Controlflow
exclusively from

SuDS
store

Controflow

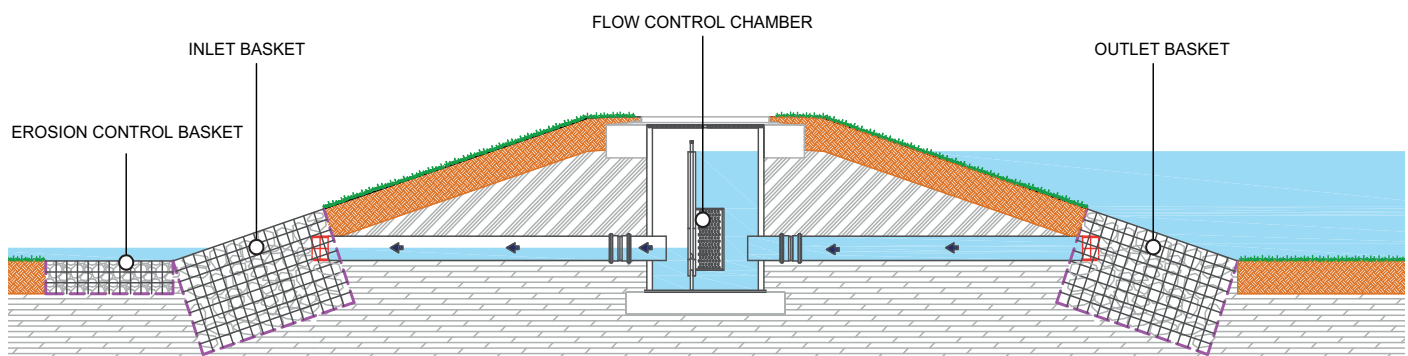
flow controls dedicated to SuDS

The Controflow® family of flow control chambers, inlet/outlet and erosion control baskets, plus blue/green roof outlet controls, has been developed by professional SuDS designers with over 25 years' experience.

Controflow Flow Control Chambers are specifically designed to manage surface water discharge from shallow SuDS elements including permeable pavements, swales and basins. They meet the latest requirements for accessible, small orifice flow controls to manage greenfield runoff rates, at modest cost. Based on established engineering principles, they demonstrate straightforward compliance to local authorities as part of the SuDS design approval process.

Controflow SuDS Baskets are manufactured in stainless steel mesh for filling with stone and act as attractive inlets or outlets that protect pipe openings (as well as flow control orifices), or as erosion control to enable gentle water flows down slopes.

Controflow Roof Outlet Control and/or Overflow Units have been specifically designed to optimise the performance of blue and green roofs, and are easily installed without interfering with existing roof outlets.



The Controflow range

- Developed by experienced SuDS designers with practicality in mind
- Tested in situ for over a decade
- Satisfies National Standards as well as the SuDS Manual 2015
- Simple installation
- Minimal maintenance over the long term
- Standard stock items, universal formats for flexible specification or bespoke designs available
- Low-cost flow control devices for use throughout management trains
- Performance easily verified by local authorities
- Straightforward specification using established criteria
- Passive operation with consistent performance
- Made to order using recyclable materials
- Easy access for inspection, measurement or sampling

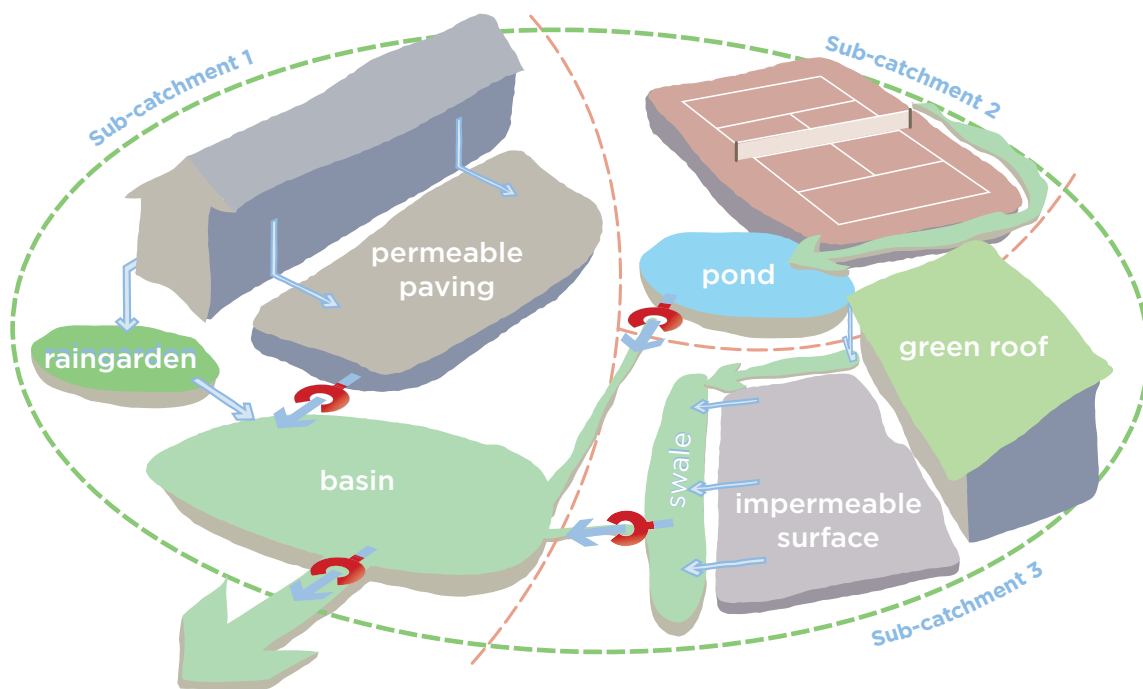
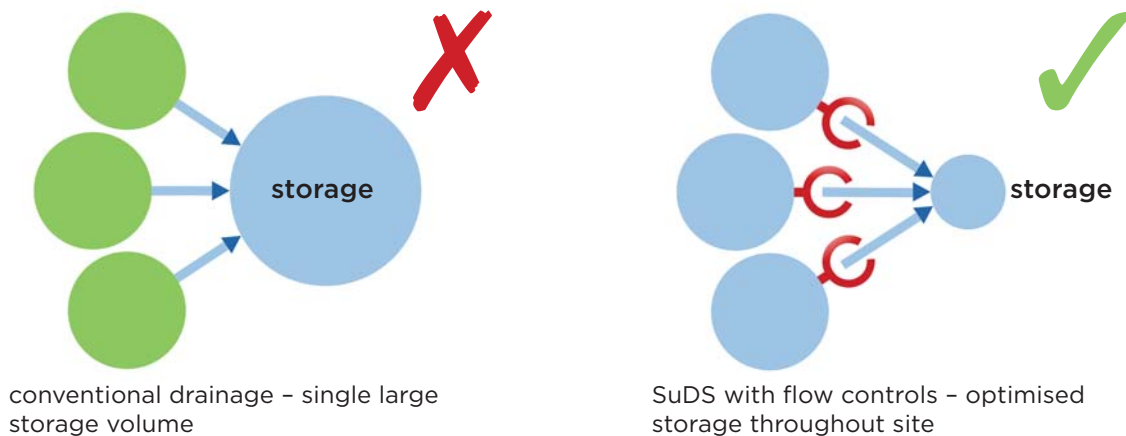
Controflow

why we need flow controls

SuDS are now a requirement on many developments approved and often adopted by local authorities. The key to successful SuDS is water storage strategically deployed around a site within SuDS elements – such as swales, basins ponds and, particularly, permeable paving – forming discrete sub-catchments with flow controls. Controflow chambers can also maximise storage in permeable paving on sloping sites, with terraced compartments separated by simple check dams. They can also detain water to optimise ground infiltration, so reducing discharge volumes.

These techniques using Controflow chambers avoid the additional land-take and costs of large, heavily engineered control and storage structures at the perimeter of developments. Their low cost and shallow construction enable Controflow chambers to be used more widely, and where needed, to manage flows from each sub-catchment as well as at site perimeters, whilst keeping water flow on or near the surface.

All orifice flow controls should be protected to prevent debris from entering the chamber, either with pre-filtering SuDS components (such as permeable paving) or Controflow SuDS Baskets.



With their low cost and shallow construction, Controflow® chambers are ideally suited to control flows from each sub-catchment as well as from whole sites, while realising a key aim of SuDS to keep water management on or near the surface.

Controflow 300 Series Level Invert

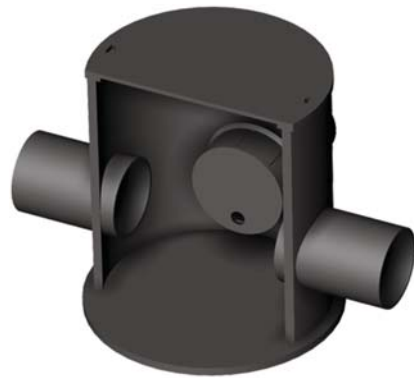
SUDS01001

Applications – permeable paving, filter drains and other shallow SuDS elements.

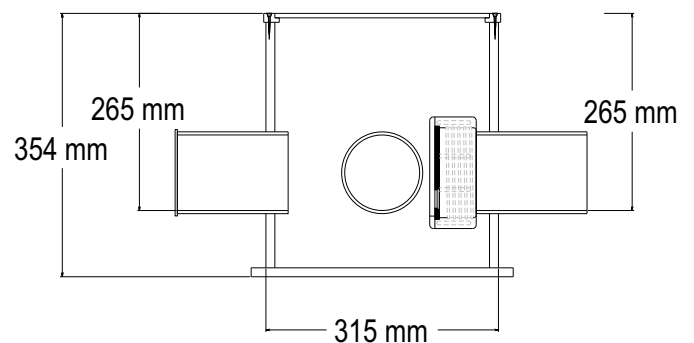
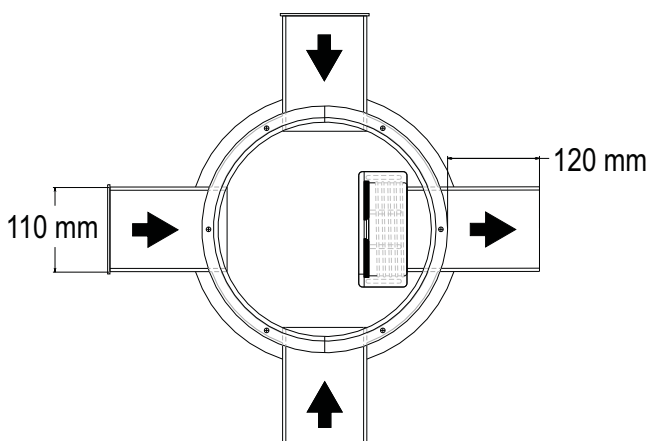
A standard, shallow flow control chamber with an un-guarded single orifice (to specified diameter), designed to manage outflows from permeable paving or other open graded sub-base construction. Its small size and low cost make it ideal for check dams between permeable paving compartments. This product does not incorporate an internal overflow (if required, use Controflow 500 Series Universal).

The removable cap locks in position with the orifice at invert level. Three 110mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included). Suitable for a maximum overall depth of 600mm (finished cover to base).

Bespoke flow control chambers can be manufactured to suit specific requirements.



Please specify:
• orifice diameter



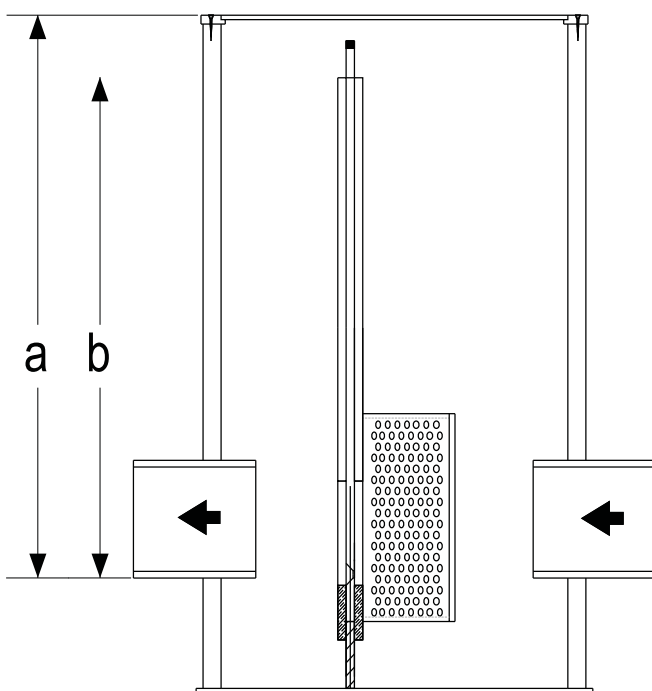
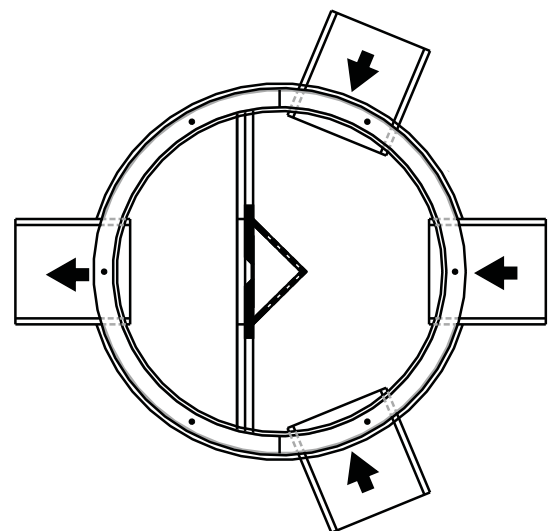
Controflow 500 Series Universal Level Invert

SUDS02005

Applications – all SuDS elements, particularly where an internal overflow is required, and at the end of the management train.

A flexible, universal flow control chamber suitable for any SuDS technique, with level inverts. The slide-out centre plate contains a circular orifice (to specified diameter), protected by an upstream guard, and acts as an overflow weir. Additional orifices can be added to order.

Three 160mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included). Suitable for depths ranging from 537mm to 1.2m (finished cover to base). An optional foul air trap is available for use when connected to combined sewers. The chamber is fully compatible with 'Cloud Water Control' wireless SuDS monitoring systems to remotely monitor live and historical stormwater performance.



Please specify:

- orifice diameter
- type/depth of cover/frame to be used
- any additional orifice positions & diameters
- if foul air trap is required
- cover to inlet invert depth 'a'
- weir to inlet depth 'b'

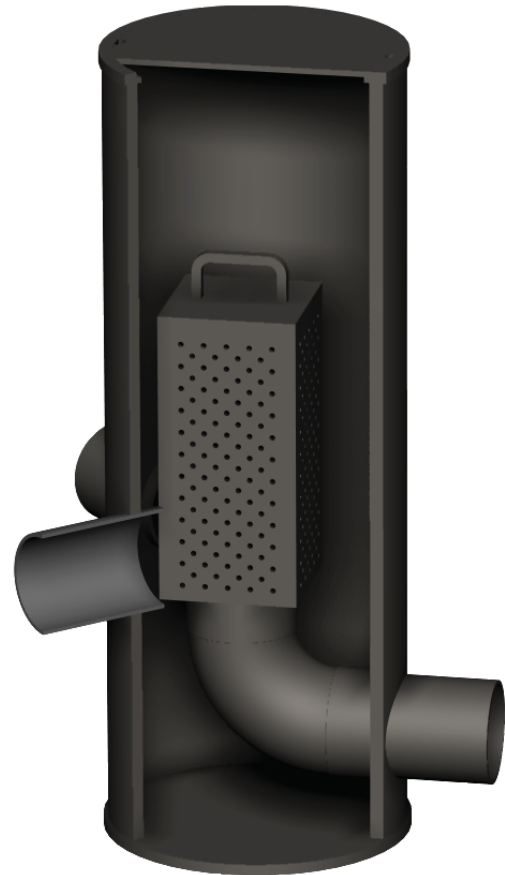
Controflow 300 Series Stepped Invert Protected Orifice

SUDS01101

Applications – permeable paving, shallow underground storage structures or where haunching or other underground obstruction prevents the use of the shallow 300 series level invert chamber.

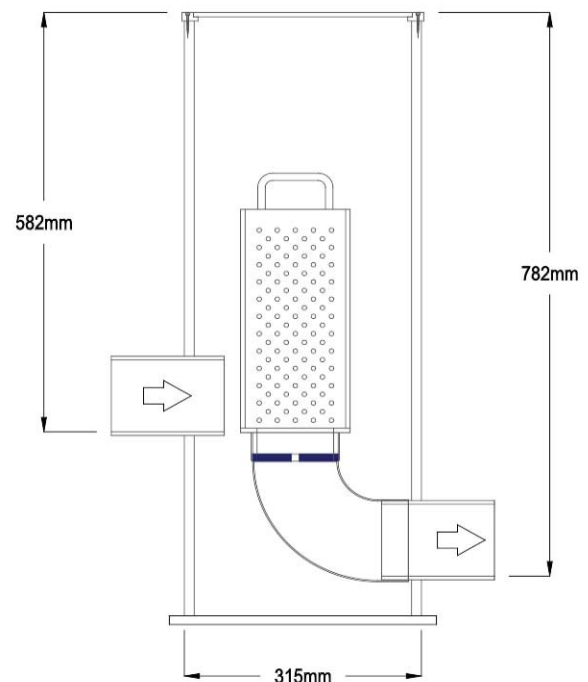
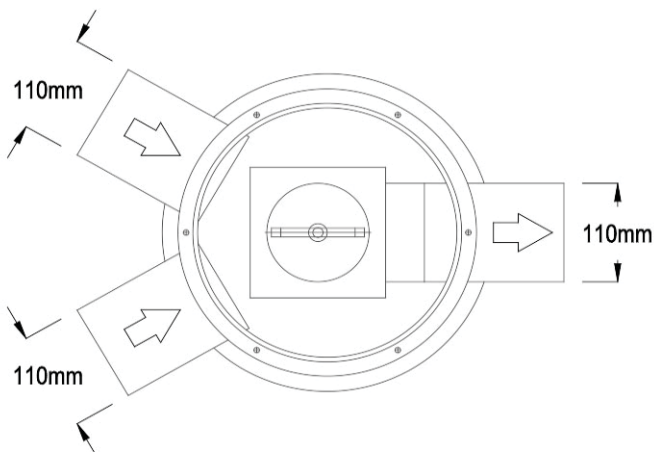
A small flow control chamber with a 110mm diameter inlet and protected orifice located at the base of a removable flow control tube. The flow control tube allows access to a deeper chamber where pipe inlet depth is obstructed by other construction factors like kerb haunching or existing pipe work.

The removable flow control tube is perforated to protect the orifice in the base of the tube. The handle to the tube provides access by hand for inspection and cleaning. This product does not incorporate an internal overflow (if required, use Controflow 500 Series Universal).



Please specify:

- orifice diameter
- type/depth of cover/frame to be used



Controflow 500 and 600 Series Stepped Invert Roddable

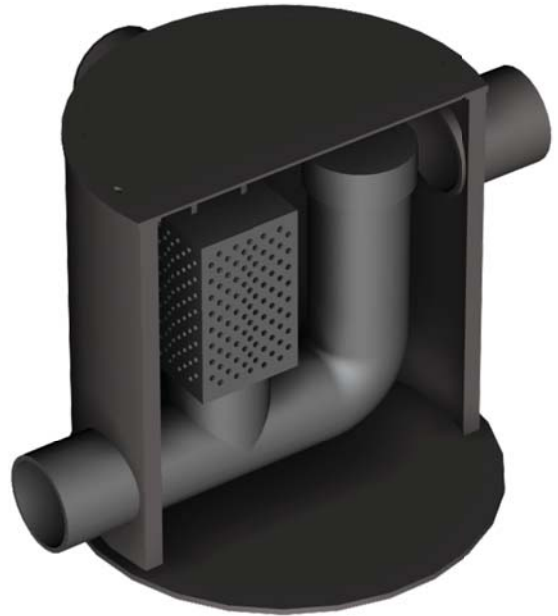
SUDS02008 (500mm)
SUDS03001 (600mm)

Applications - permeable paving.

A standard flow control chamber with a single, guarded orifice (to specified diameter), designed to manage outflows from permeable paving or other open graded sub-base construction. Stepped inverts simplify the construction of transitions from shallow permeable paving to deeper constructions.

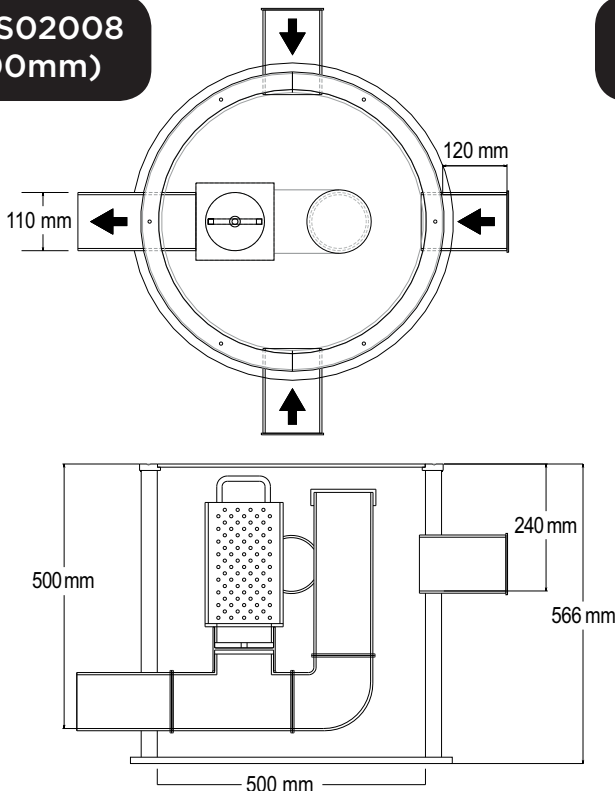
The protective guard and orifice cap are removable, and the rodding access upstand can act as an overflow with its cap removed. Three inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included).

Bespoke flow control chambers can be manufactured to suit specific requirements.

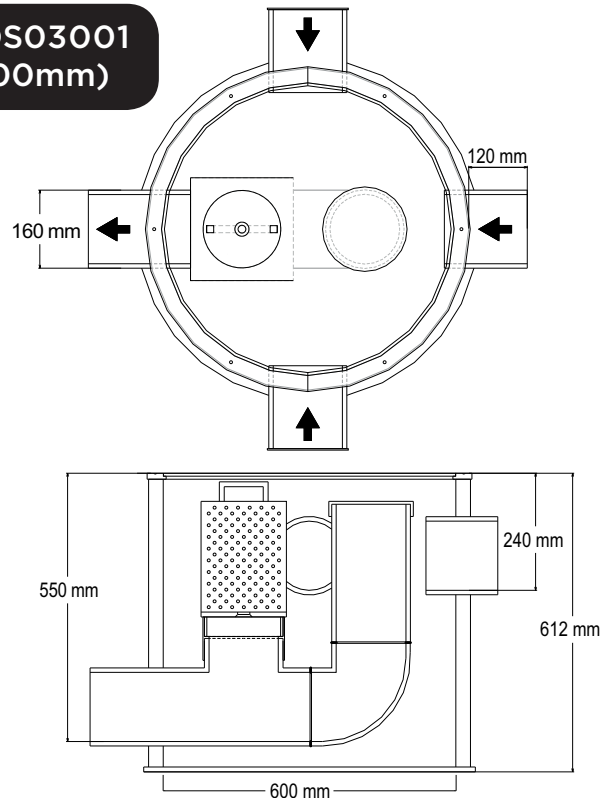


Please specify:
• orifice diameter

**SUDS02008
(500mm)**



**SUDS03001
(600mm)**



Stainless Steel Erosion Control Basket 600x300x150mm

SUDS08101

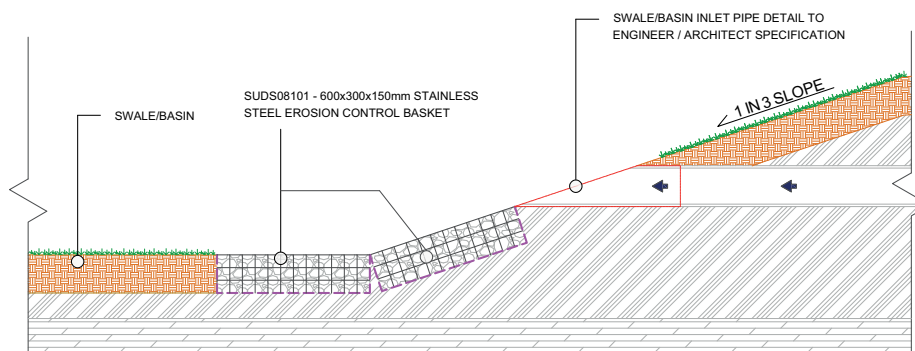
A universal stainless steel mesh SuDS basket designed to be filled with 80mm - 150mm stone that prevents erosion of soil profiles where pipe outfalls and low flow channels deliver water down slopes from SuDS features. The shallow basket (150mm deep) is laid dry directly onto subsoil with a geotextile surround (but not over the surface) to each basket preventing erosion of the soil.

The basket can be filled with soil to encourage vegetation cover. Each basket is supplied flat with crimp clips (fitted at 200mm centres) and a needle punched polypropylene geotextile liner to prevent erosion.



- **Protects soil surfaces from pipe outlets and low flow channels on slopes**
- **Anti-erosion geotextile surround to prevent soil erosion**
- **Cost effective and minimum maintenance**

Typical Application - Erosion Control



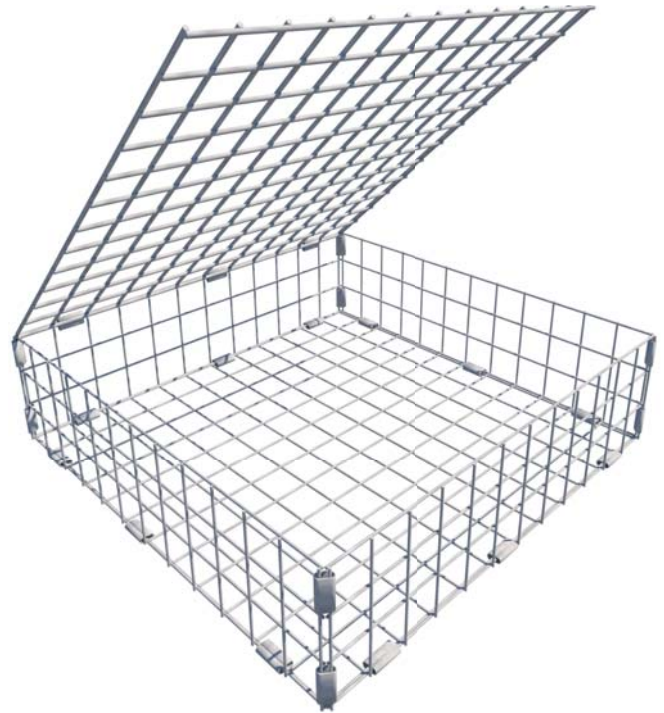
Stainless Steel Erosion Control Basket 600x600x150mm

SUDS08100

A universal stainless steel mesh SuDS basket designed to be filled with 80-150mm stone that prevents erosion of soil profiles where 600mm wide basket outfalls deliver water down slopes from SuDS features. The shallow basket (150mm deep) is laid dry onto subsoil with a geotextile surround to each basket to prevent erosion of soil. The surface face is left open to allow water to flow in the basket or for vegetation cover.

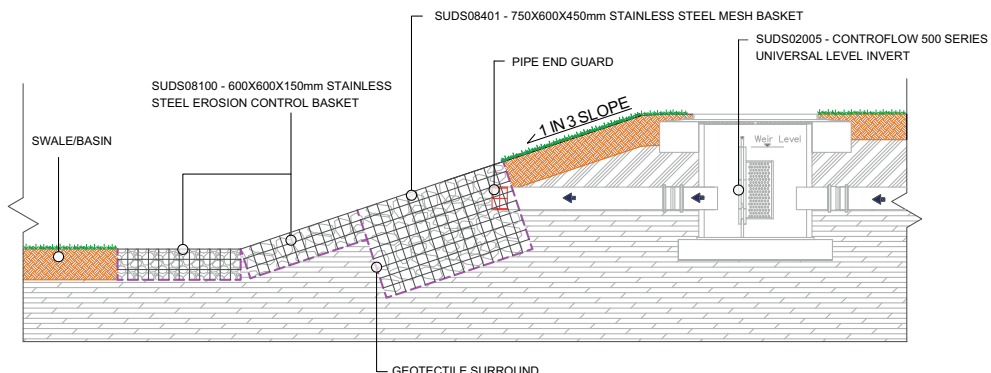
Each basket is supplied flat with crimp clips (fitted at 200mm centres) and a geotextile liner to prevent erosion.

- **Protects soil surfaces from 600mm wide stainless steel mesh basket inlets or kerb inlets**
- **Integrates into surface landscape**
- **Cost effective and minimum maintenance**



* Stone infill sold separately

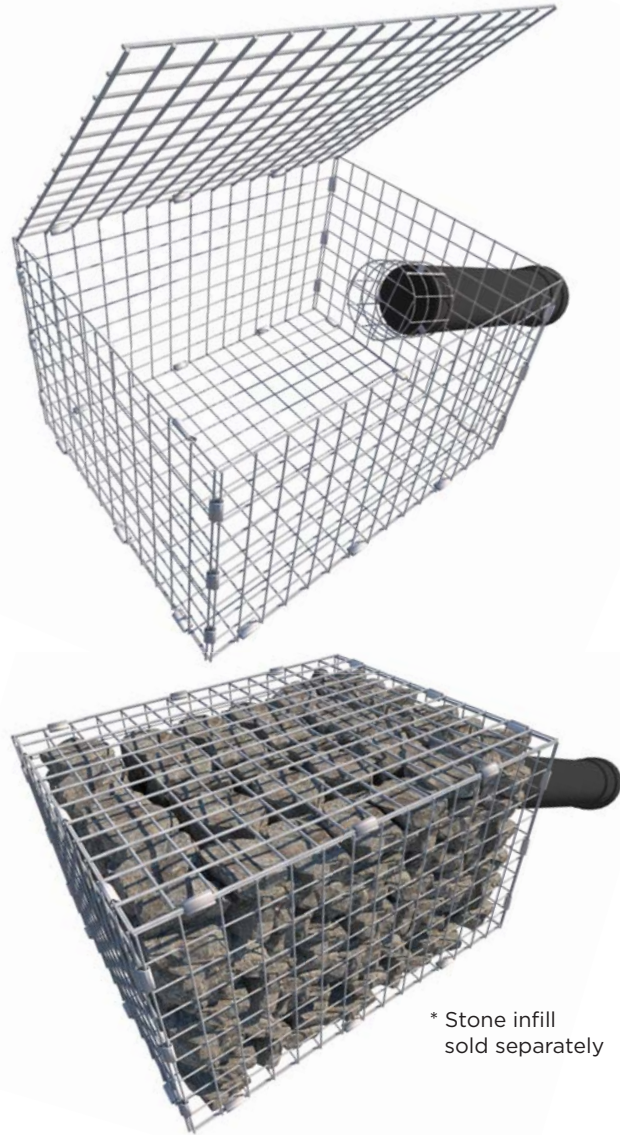
Typical Application - Erosion Control



Stainless Steel Mesh Basket 750x600x450mm

SUDS08401

The 750x600x450mm Stainless Steel Mesh SuDS Basket is used as an attractive pipe inlet or outlet within landscaped SuDS features such as swales, ponds and basins. It diffuses inbound and outbound flows, conceals and protects the pipe. Each basket is supplied flat with crimp clips (fitted at 200mm centres), a stainless steel mesh pipe guard (to specified pipe size) and a geotextile liner to prevent erosion. It has a hinged lid for access and is designed to be filled with 80mm - 150mm stone.* The pipe exit location is flexible but should avoid the box hinge and can be determined on site depending on local requirements.



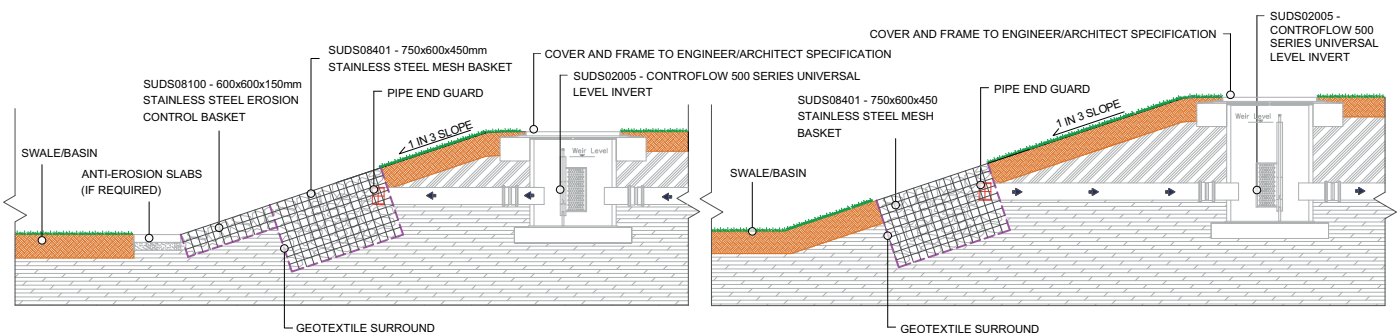
* Stone infill sold separately

- Diffuse inbound or outbound flows for landscaped SuDS
- Attractive and low-maintenance
- Easy access for maintenance
- Ideally suited to 100mm pipe

Please specify:

- pipe diameter

Typical Applications - 100mm pipe inlet and outlet:



Stainless Steel Mesh Basket 900x600x450mm

SUDS08402

The 900x600x450mm Stainless Steel Mesh SuDS Basket is used as an attractive pipe inlet or outlet within landscaped SuDS features such as swales, ponds and basins. It diffuses inbound and outbound flows, conceals and protects the pipe. Each basket is supplied flat with crimp clips (fitted at 200mm centres), a stainless steel mesh pipe guard (to specified pipe size) and a geotextile liner to prevent erosion. It has a hinged lid for access and is designed to be filled with 80mm - 150mm stone.* The pipe exit location is flexible but should avoid the box hinge and can be determined on site depending on local requirements.



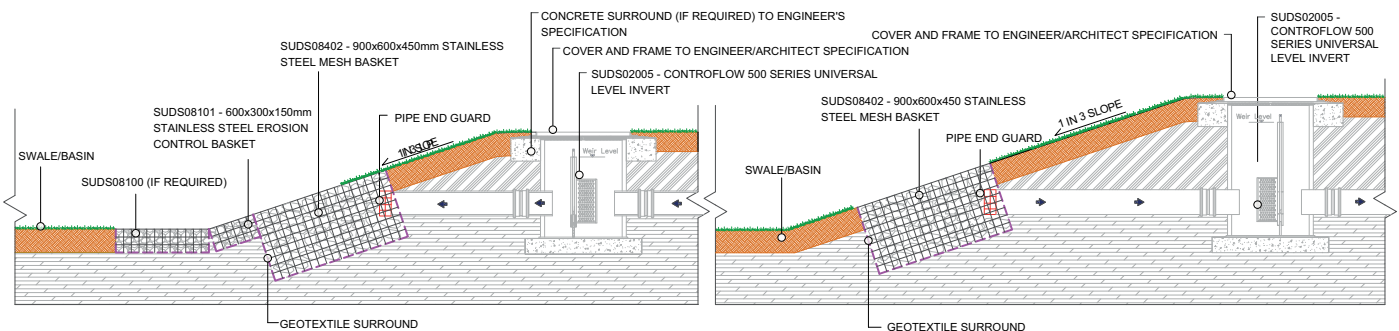
* Stone infill sold separately

- Diffuse inbound or outbound flows for landscaped SuDS
- Attractive and low-maintenance
- Easy access for maintenance
- Ideally suited to 150mm pipe

Please specify:

- pipe diameter

Typical Applications - 150mm pipe inlet and outlet:



Controflow Vertical Roof Outlet Flow Control and Overflow Chamber

SUDS04001

Applications - blue and green roofs.

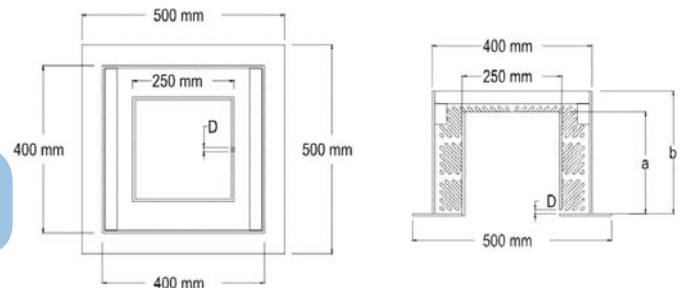
A universal combined flow control and overflow chamber for use on blue and green roofs with vertical outlets. The roof outlet chamber can be easily installed, and is ideal for restricting flows from blue/green roofs, without interfering with existing roof outlets. Each chamber is designed to limit the flow through an orifice at the required discharge rate, and has an integral debris filter and an unrestricted overflow through a vertical outlet. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.



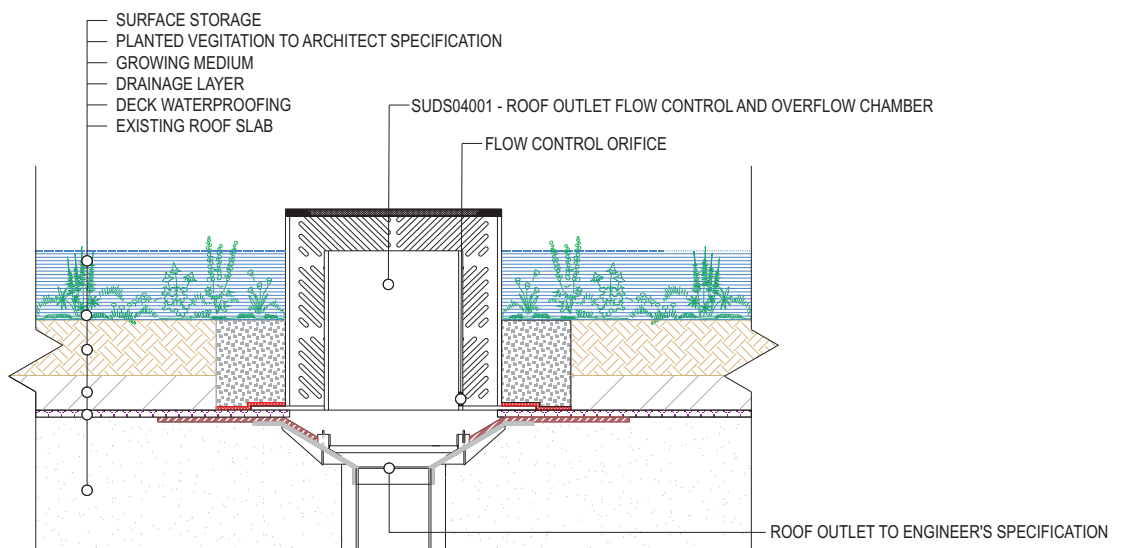
- **Integral debris filter**
- **Universal flow control outlet**
- **Combined flow control and overflow**

Please specify:

- if polypropylene cover is required



Typical Application:



Controflow Vertical Roof Outlet Overflow Chamber

SUDS04101

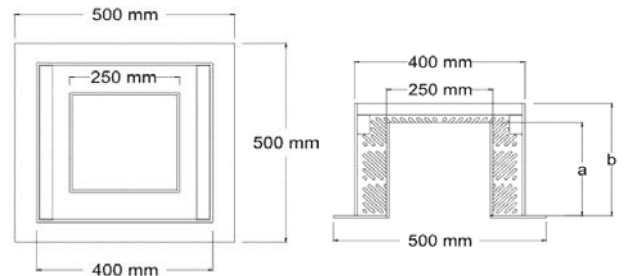
Applications - blue and green roofs.

A universal overflow chamber for use on blue and green roofs with vertical outlets. The roof outlet chamber can be easily installed, and is ideal for ensuring water levels do not exceed the designed top water level on blue/green roofs, without interfering with existing roof outlets. Chambers are made to suit site requirements, allowing users to specify the height of the filter and overflow. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

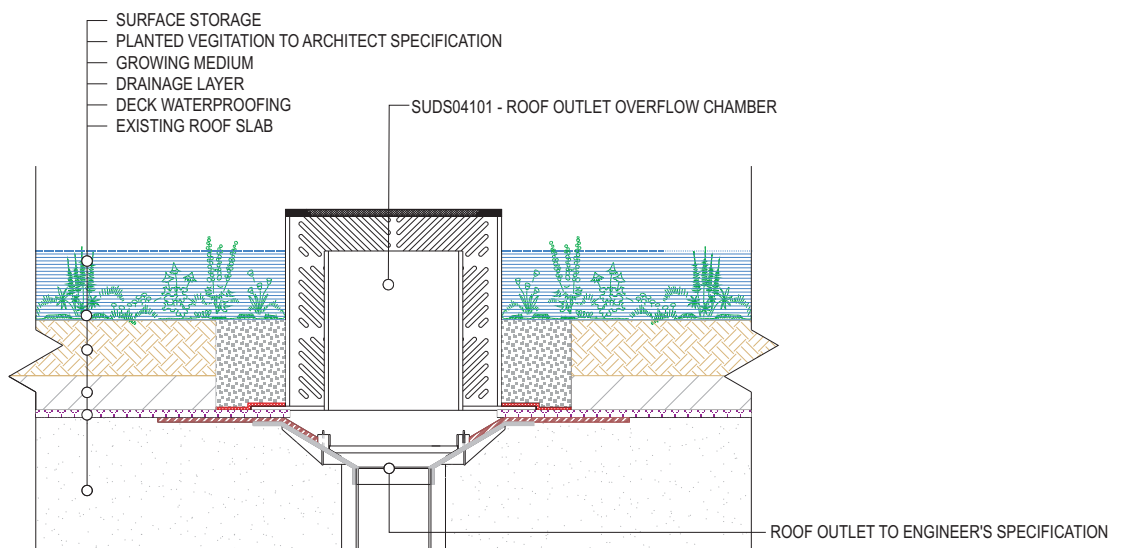
- Easy to install
- Universal roof outlet overflow

Please specify:

- if polypropylene cover is required



Typical Application:



Controflow Parapet Wall Outlet Flow Control Chamber with Overflow

SUDS04201

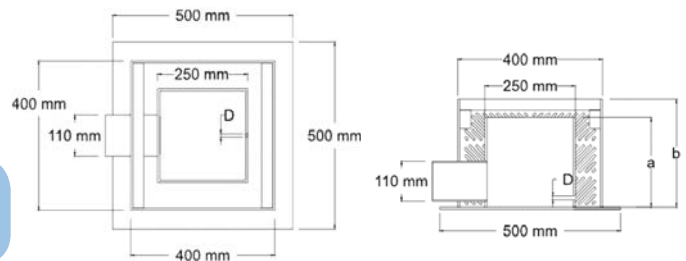
Applications - blue and green roofs.

A universal combined flow control and overflow chamber for use on blue and green roofs with parapet wall outlets. Designed to limit water flows through an orifice to the designed discharge rate. The SUDS04201 - Parapet Wall Outlet Flow Control Chamber with Overflow is supplied with an integral debris filter to protect the orifice, ensuring unhindered flow control performance. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

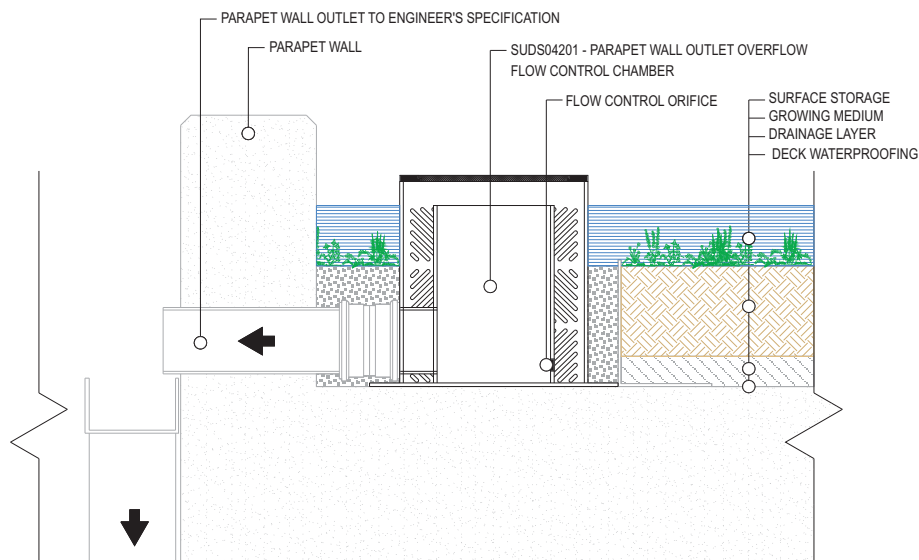
- **Universal parapet roof outlet**
- **Restricts flows to designed rates**

Please specify:

- if polypropylene cover is required



Typical Application:



Controflow Parapet Wall Roof Outlet Overflow Chamber

SUDS04301

Applications - blue and green roofs.

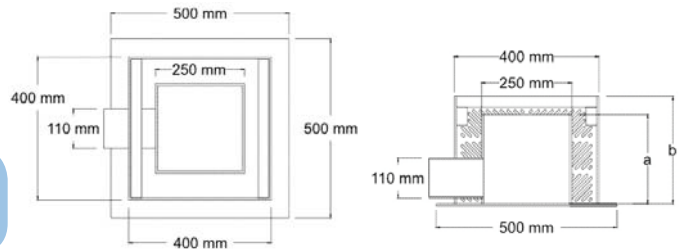
A universal overflow chamber for use on blue and green roofs with parapet wall outlets. Designed to allow water to flow unrestricted through the parapet wall, preventing green/blue roof constructions from exceeding the designed top water level. The chamber is supplied with an integral debris filter and a standard 110mm Ø push fit coupling for connection to existing roof outlets. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.



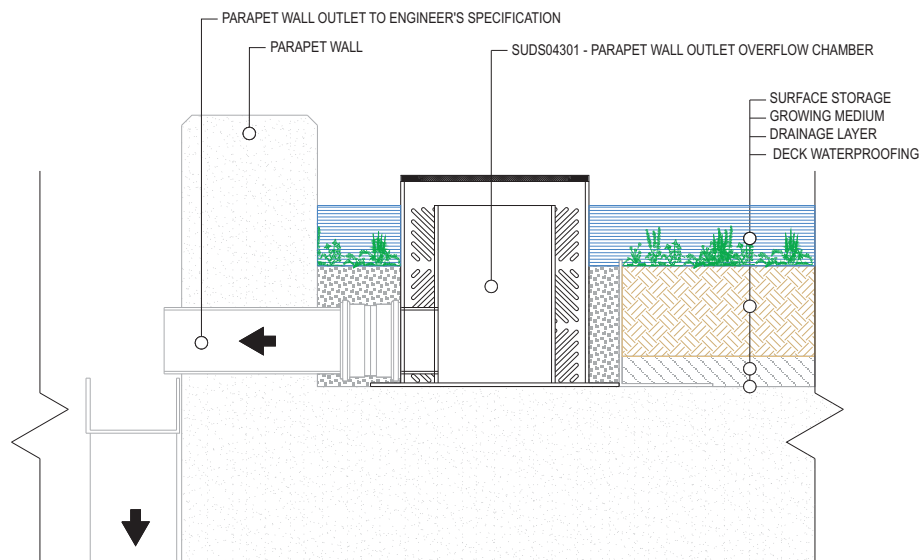
- Universal parapet roof outlet
- Unrestricted overflow to existing outlet

Please specify:

- if polypropylene cover is required



Typical Application:

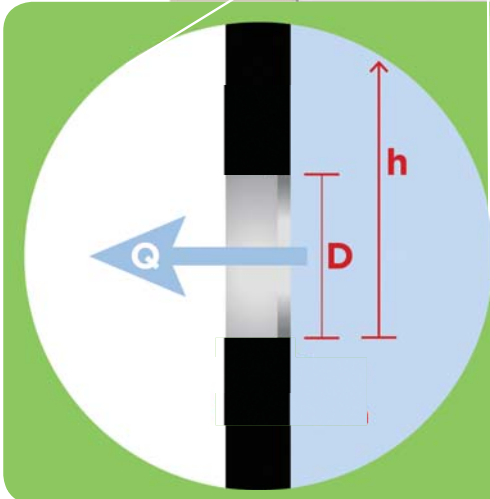
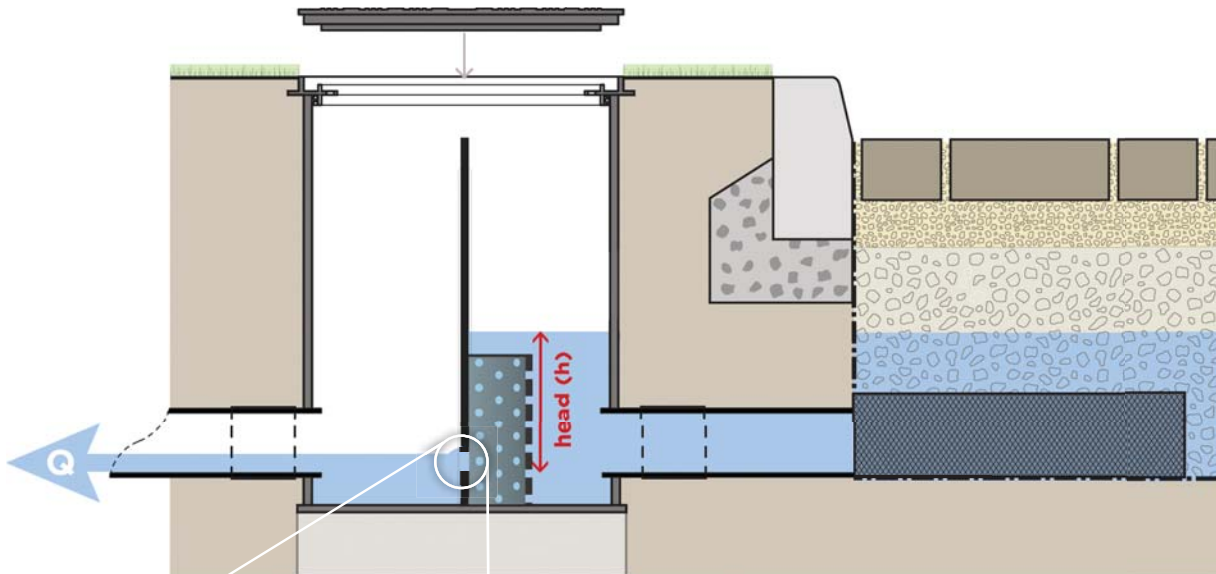


Controflow

Straightforward design and predictable performance

The Controflow® orifice design is based on well-established flow rate performance characteristics using the standard orifice equation shown below. The Controflow® orifice profile is recognised as delivering a standard 0.65 coefficient of discharge irrespective of orifice size.

The performance of Controflow® mimics the gradual response of natural drainage particularly during short duration or low intensity rainfall. Full flow characteristics operate once the storage depth provides the designed 'hydraulic head'.



$$Q = Cd(\frac{1}{4}\pi D^2)\sqrt{2gh}$$

where:

- Q = specified flow rate (orifice discharge rate - l/s)
- h = hydraulic head (m)
- D = resulting orifice diameter (mm)
- Cd = coefficient of discharge (the standard 0.65 applies to all Controflow® orifices)
- g = gravitational constant (9.80665m/s²)

A simple to use, interactive orifice calculator is available at www.sudsstore.com



Controflow

exclusively from

SuDS store

Call:

01254 694 071

Email:

info@sudsstore.com

Visit:

www.sudsstore.com